

**CorHealth
Ontario**

*Advancing cardiac, stroke
and vascular care*

ST-Elevation Myocardial Infarction (STEMI) Quarterly Performance Measurement Report

Champlain LHIN

Report for FY 21/22 Q3: October 01, 2021 to December 31, 2021

Report produced as of January 13, 2022

Note: Due to the impact of COVID-19 on the health system, results from March 2020 onwards should be interpreted with caution. Hospitals were required to cancel and delay less urgent procedures in order to ensure resources were available to treat COVID-19 patients and a decrease in STEMI cases was noted initially. As a result, activity may be lower than previous quarters.

Introduction

As of June 22, 2017, we are CorHealth Ontario, an organization formed by the merger of the Cardiac Care Network of Ontario and the Ontario Stroke Network, with an expanded mandate spanning cardiac, stroke and vascular. CorHealth Ontario proudly advises the Ministry of Health and Long Term Care, Local Health Integration Networks, hospitals, and care providers to improve the quality, efficiency, accessibility and equity of cardiac, stroke and vascular services for patients. Our priority is to ensure the highest quality of care, based on evidence, standards and guidelines, and actively monitors access, volumes and outcomes of cardiac procedures in Ontario. CorHealth Ontario manages the Cardiac and Vascular Registries which are a robust information source of patient clinical data to inform stakeholders.

Background

In 2011, CorHealth Ontario established the Ontario ST Elevation Myocardial Infarction (STEMI) Network to address variation and standardize STEMI care across the province. The STEMI Network membership is comprised of cardiologists, interventional cardiologists, emergency department physicians, base hospital medical directors, paramedic chiefs, paramedics, and administrators.

CorHealth Ontario published the document Recommendations for Best-Practice STEMI Management in Ontario, in June 2013. This document defined several goals for STEMI care in Ontario, including:

- All eligible STEMI patients are reperfused within the recommended timelines; and
- If the timelines can be achieved, the preferred reperfusion strategy is primary percutaneous coronary intervention (pPCI).

In February 2016, CorHealth Ontario launched the implementation of two new protocols to update the STEMI system of care aimed at eliminating variation in STEMI management:

- Ontario STEMI Bypass Protocol for patients calling 911; and
- Ontario Emergency Department (ED) STEMI Protocol for patients presenting to an ED.

The Ontario STEMI Bypass Protocol enables paramedics to perform a 12-lead ECG in the field and as appropriate, bypass local hospitals, transporting STEMI patients directly to a PCI-capable hospital. It is generally expected that PCI hospitals with a STEMI program will have a 'no refusal' policy for STEMI patients.

The Ontario ED STEMI Protocol outlines strategies for early STEMI identification, triage and the reperfusion decision for patients presenting directly to an ED. Reperfusion strategies are designated for each hospital as either:

- Primary PCI for an ED with a drive time of less than 60 minutes to a PCI-capable hospital; or
- Pharmacoinvasive (fibrinolytic administration and transfer to PCI-capable hospital within 24 hours) for an ED with a drive time of greater than 60 minutes to a PCI-capable hospital.

Across Ontario, there are existing local partnership agreements and transfer protocols in place between paramedic services, PCI, non-PCI and base hospitals. In 2016 CorHealth Ontario completed a geographical analysis of drive times between PCI hospitals with STEMI programs and non-PCI hospitals and developed site specific PCI-capable hospital STEMI Partnership Maps (see Appendix A). Through this process existing partnerships were validated and additional partnerships were formed.

These partnership maps were distributed to all EDs in Ontario and serve to clarify a hospital's reperfusion strategy based on the drive time to a PCI-capable hospital. The new protocols will complement established processes and further promote a standardized integrated STEMI system of care in Ontario.

STEMI Performance Indicators

Integral to continuously improving Ontario's STEMI system of care is the measurement and evaluation of key performance indicators. These indicators were selected by clinical experts based on best practices and evidence supported in current literature (CCS STEMI guidelines 2004, ACC/AHA STEMI guidelines 2013). The four primary STEMI performance indicators reflected in this report are:

1. Percentage of STEMI Cases Achieving Time \leq 10 Minutes to ECG Acquisition.
2. Percentage of STEMI Cases Achieving Time \leq 30 Minutes to Fibrinolytic Administration.
3. Percentage of STEMI Cases Presenting Directly to a PCI Hospital Achieving Time \leq 90 Minutes from First Medical Contact to First Balloon Inflation/Device Deployment.
4. Percentage of STEMI Cases Presenting to a Non-PCI Hospital Achieving Time \leq 120 Minutes from ED Triage/Registration (Hospital Arrival) to First Balloon Inflation/Device Deployment.

In addition, three sub-indicators have been identified and are reflected in Appendix B, C and D in this report:

1. Percentage of STEMI Cases Presenting Directly to a PCI Hospital via Paramedic Services Achieving Time \leq 90 Minutes from Qualifying ECG to First Balloon Inflation/Device Deployment.
2. Median Time of STEMI Cases Presenting Directly to a PCI Hospital via Paramedic Services from First Medical Contact to Hospital Arrival.
3. Median Time of STEMI Cases Presenting to a Non-PCI Hospital via Paramedic Services from First Medical Contact to Balloon Inflation/Device Deployment.

Data Source

The data source is the CorHealth Ontario Cardiac Registry. A coordinator at each PCI hospital collects STEMI metrics via a STEMI case report form that is designed to capture all the data elements for each report indicator's start and stop time. The metrics are collected retrospectively from the patient's chart and then entered into the CorHealth Ontario Cardiac Registry. In addition to this LHIN level report, CorHealth Ontario provides quarterly STEMI outcome reports to all PCI hospitals with a STEMI program.

The STEMI case counts for all indicators have been excluded from this report. In order to comply with privacy legislation, CorHealth Ontario is required to suppress cell counts that are <5 . As many of the STEMI case counts presented in this report are <5 , it was decided to suppress all case counts, regardless of volume. This allows STEMI metrics to be reported at all centres, regardless of case count, without having to suppress any of the data.

If you have any questions regarding this report please contact,

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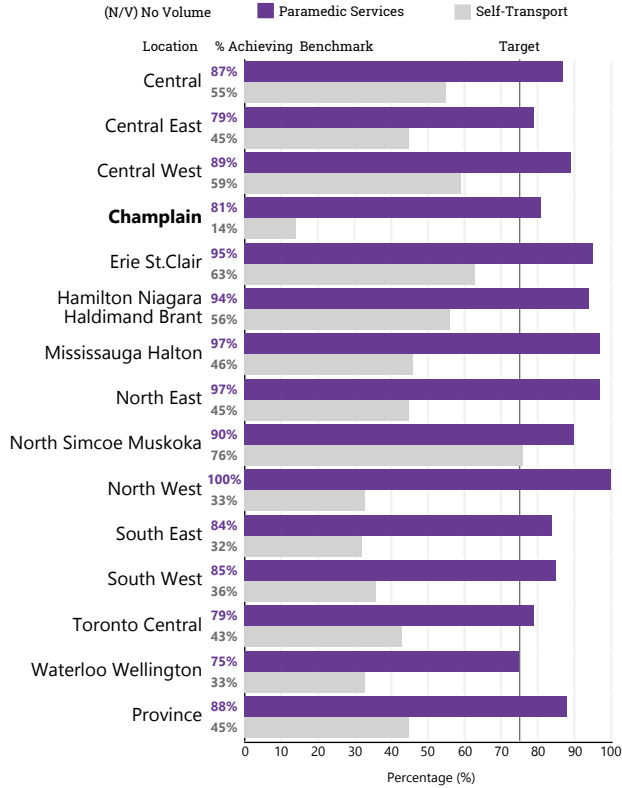
Percentage of STEMI Cases Achieving Time ≤ 10 Minutes to ECG Acquisition

FY 21/22 Q3: October 01, 2021 to December 31, 2021

Performance Summary:

Presentation	Province	Champlain LHIN	Target
Paramedic Services	88%	81%	75 %
Self-Transport	45%	14%	

Province

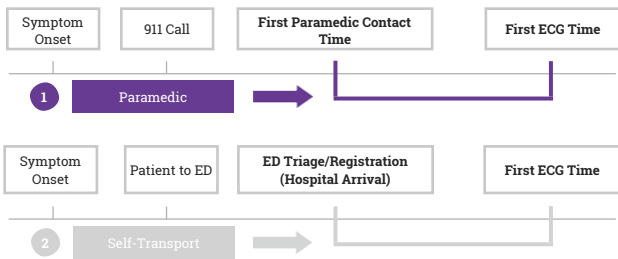


DQ Note: 209 case(s) were excluded due to missing or incomplete data.
 Report Note: Interpret SAH STEMI data with caution as their STEMI program is currently not fully operational.

Indicator Definition:

This indicator is the acquisition of an ECG within 10 minutes of first medical contact (FMC). FMC is defined based on how the patient presents to the system.

- For patients who present via paramedic services: Indicator start is FMC time and end is first paramedic ECG acquisition time.
- For patients that self-transport to ED: Indicator start is ED triage/registration (hospital arrival) time and end is first hospital ECG acquisition time.



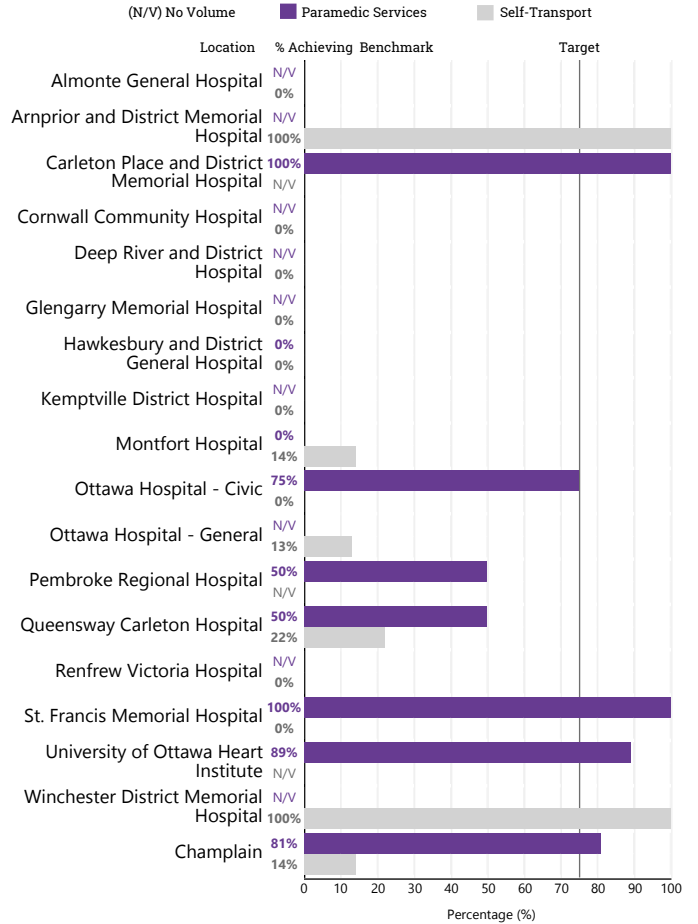
Inclusion:

- STEMI diagnosis on referral
- Proceeds to procedure
- Coronary angiogram as initial procedure

Exclusion:

- Records with invalid data
- Records with incomplete data
- In-hospital patients

Champlain LHIN



DQ Note: 58 case(s) were excluded due to missing or incomplete data.

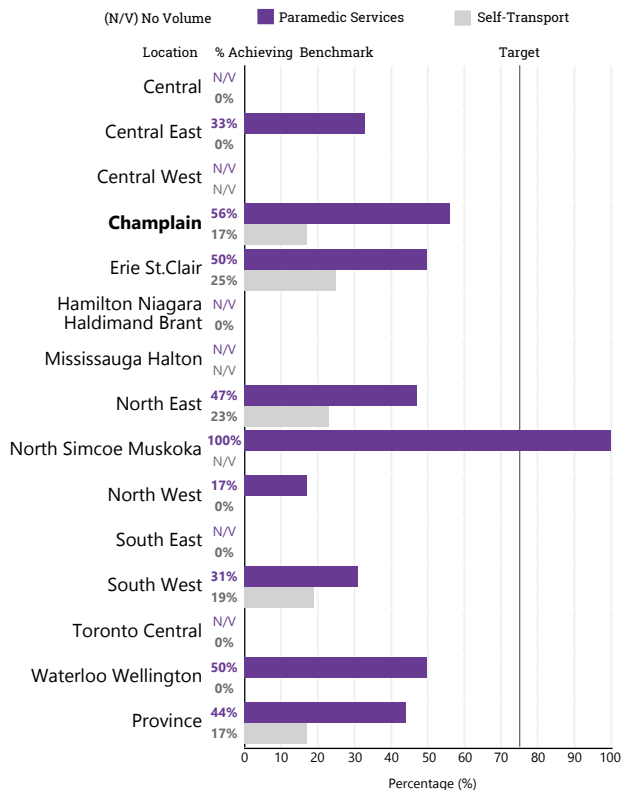
Percentage of STEMI Cases Achieving Time ≤ 30 Minutes to Fibrinolytic Administration

FY 21/22 Q3: October 01, 2021 to December 31, 2021

Performance Summary:

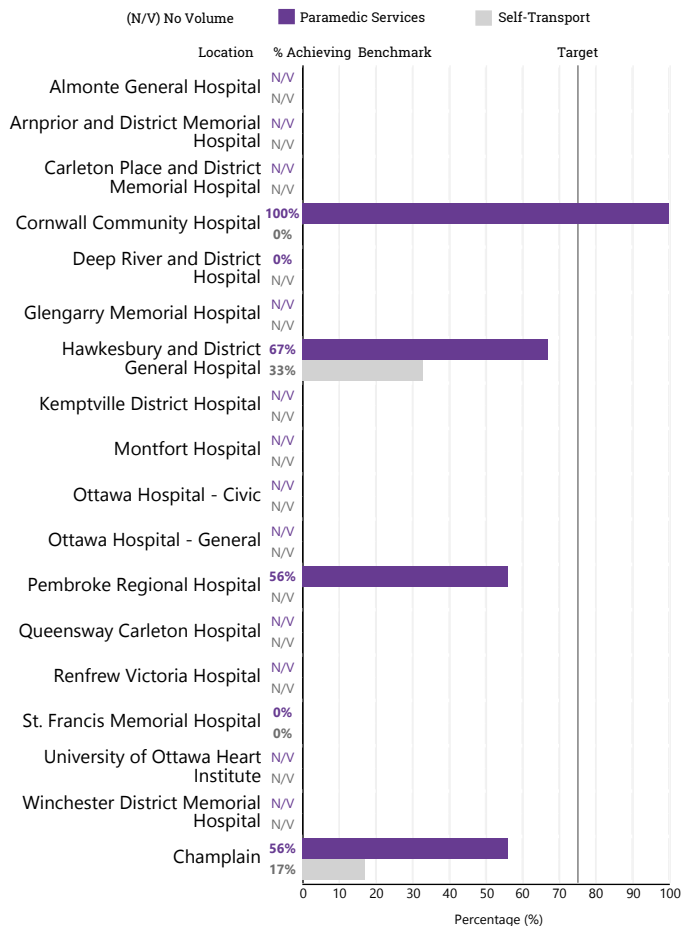
Presentation	Province	Champlain LHIN	Target
Paramedic Services	44%	56%	75 %
Self-Transport	17%	17%	

Province



DQ Note: 8 case(s) were excluded due to missing or incomplete data.
Report Note: Interpret SAH STEMI data with caution as their STEMI program is currently not fully operational.

Champlain LHIN

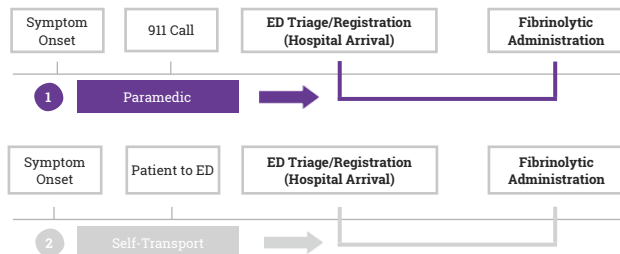


DQ Note: 2 case(s) were excluded due to missing or incomplete data.

Indicator Definition:

This indicator is the administration of fibrinolytic therapy within 30 minutes of ED triage/registration (hospital arrival) time.

- For patients who present via paramedic services: Indicator start is ED triage/registration (hospital arrival) time and end is fibrinolytic therapy administration time.
- For patients that self-transport to ED: Indicator start is ED triage/registration (hospital arrival) time and end is fibrinolytic therapy administration time.



Inclusion:

- STEMI diagnosis on referral
- Proceeds to procedure
- Coronary angiogram as initial procedure
- Fibrinolysis administered

Exclusion:

- Records with invalid data
- Records with incomplete data
- In-hospital patients

The data presented is collected in the Cardiac Registry

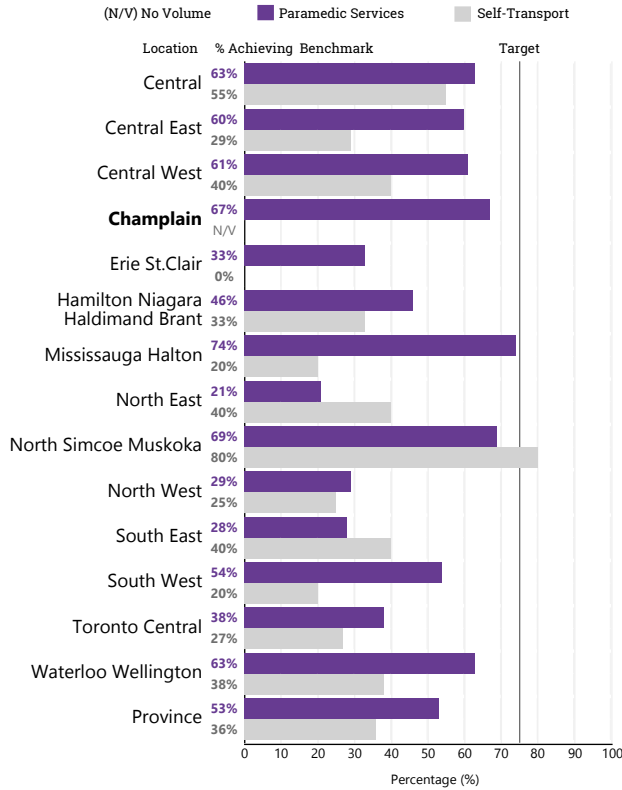
Percentage of STEMI Cases Presenting Directly to a PCI Hospital Achieving Time ≤ 90 Minutes from First Medical Contact to First Balloon Inflation/Device Deployment

FY 21/22 Q3: October 01, 2021 to December 31, 2021

Performance Summary:

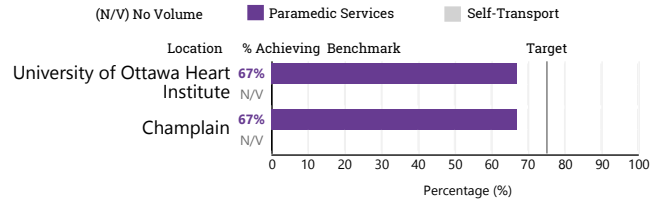
Presentation	Province	Champlain LHIN	Target
Paramedic Services	53%	67%	75 %
Self-Transport	36%	N/V	

Province



DQ Note: 46 case(s) were excluded due to missing or incomplete data.
 Report Note: 19 case(s) were excluded due to fibrinolysis contraindicated.
 Interpret SAH STEMI data with caution as their STEMI program is currently not fully operational.

Champlain LHIN

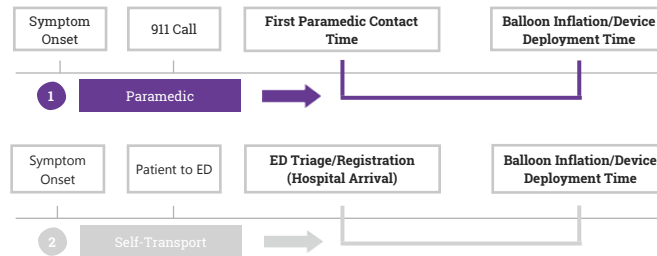


DQ Note: 16 case(s) were excluded due to missing or incomplete data.

Indicator Definition:

This indicator is the time to balloon inflation/device deployment within 90 minutes of first medical contact (FMC) for patients transported directly to a PCI hospital for primary PCI. FMC contact is defined based on how the patient presents to the system.

- For patients who present via paramedic services: Indicator start is first paramedic contact time and end is first balloon inflation/device deployment time.
- For patients that self-transport to the PCI hospital ED: Indicator start is ED triage/registration (hospital arrival) time and end is first balloon inflation/device deployment.



Inclusion:

- STEMI diagnosis on referral
- Proceeds to procedure
- Coronary angiogram as initial procedure
- Proceeds directly to a STEMI PCI site
- Proceeds to primary PCI

Exclusion:

- Records with invalid data
- Records with incomplete data
- In-hospital patients
- Fibrinolytic contraindicated

The data presented is collected in the Cardiac Registry

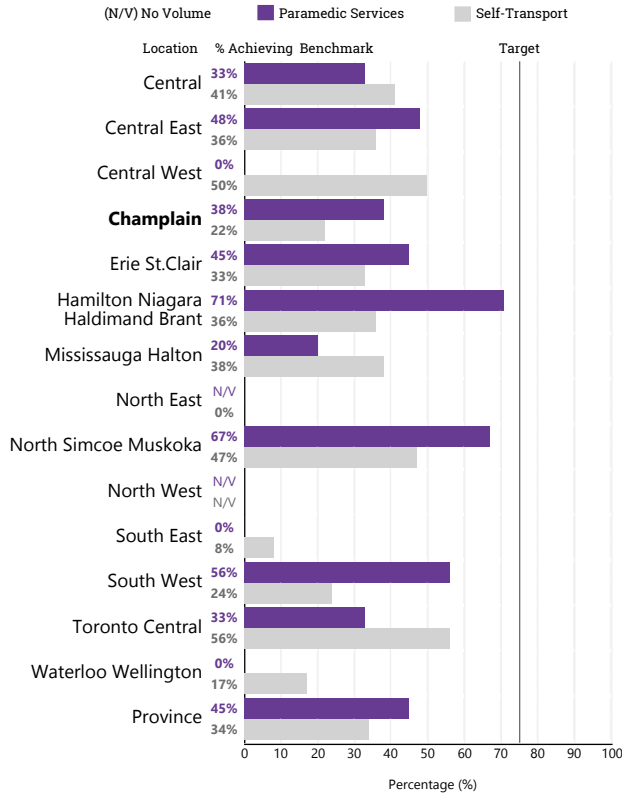
Percentage of STEMI Cases Presenting to a Non-PCI Hospital Achieving Time ≤ 120 Minutes from ED Triage/Registration (Hospital Arrival) to First Balloon Inflation/Device Deployment

FY 21/22 Q3: October 01, 2021 to December 31, 2021

Performance Summary:

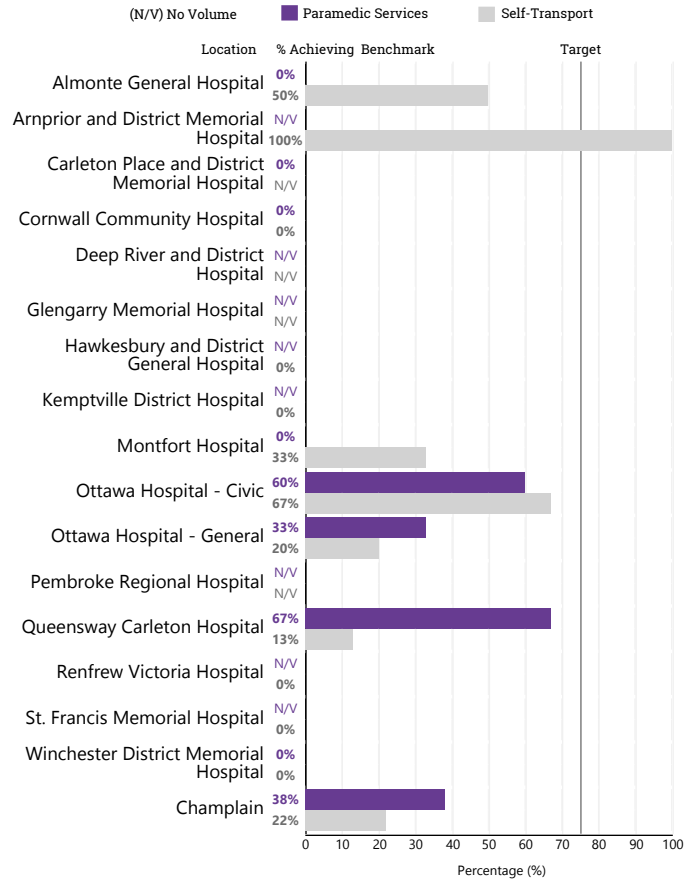
Presentation	Province	Champlain LHIN	Target
Paramedic Services	45%	38%	75 %
Self-Transport	34%	22%	

Province



DQ Note: 9 case(s) were excluded due to missing or incomplete data.
 Report Note: 21 case(s) were excluded due to fibrinolysis contraindicated.
 Interpret SAH STEMI data with caution as their STEMI program is currently not fully operational.

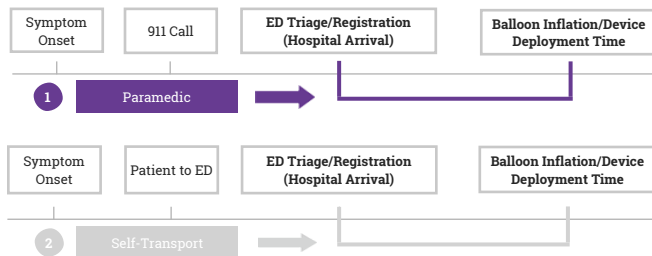
Champlain LHIN



DQ Note: 4 case(s) were excluded due to missing or incomplete data.

Indicator Definition:

This indicator is the time to balloon inflation/device deployment within 120 minutes from arrival at a non-PCI hospital ED followed by transfer to a PCI hospital. The indicator start is non-PCI hospital ED triage/registration (hospital arrival) time and end is first balloon inflation/device deployment.



Inclusion:

- STEMI diagnosis on referral
- Proceeds to procedure
- Coronary angiogram as initial procedure
- Proceeds to a STEMI PCI site from a non-PCI site
- Proceeds to primary PCI

Exclusion:

- Records with invalid data
- Records with incomplete data
- In-hospital patients
- Fibrinolytic contraindicated

The data presented is collected in the Cardiac Registry

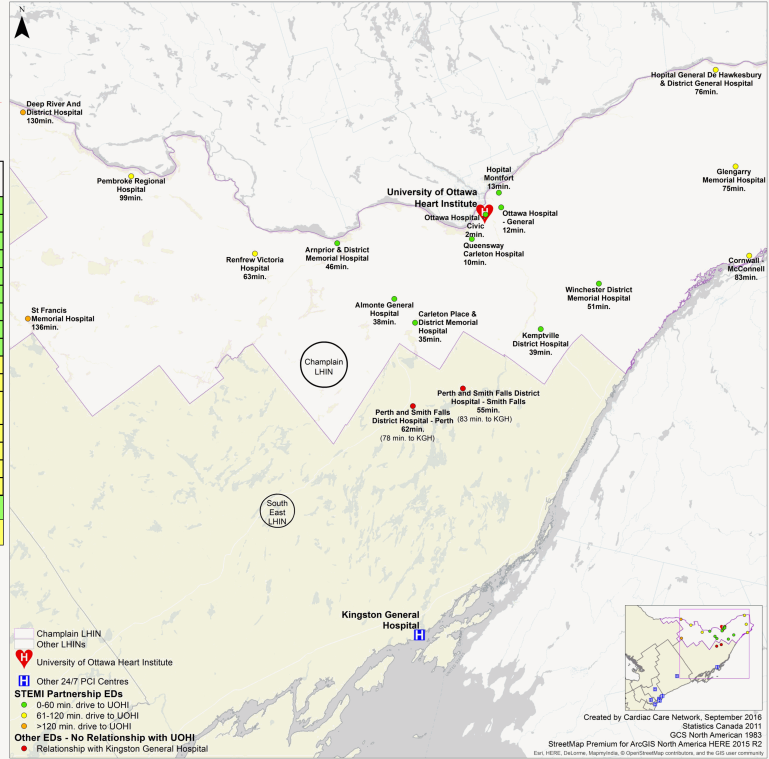
PCI Hospital STEMI Partnership Maps (Appendix A)

FY 21/22 Q3: October 01, 2021 to December 31, 2021

UNIVERSITY OTTAWA HEART INSTITUTE (UOHI)

STEMI Partnerships with Non-PCI Hospitals

ED LHM	Non-PCI Hospital Partnership with UOHI	Drive Time to UOHI (mins)
CHM	Ottawa Hospital - Civic	2
CHM	Queensway Carleton Hospital	10
CHM	Ottawa Hospital - General	12
CHM	Hôpital Montfort	13
CHM	Carleton Place and District Memorial Hospital	35
CHM	Almonte General Hospital	38
CHM	Kemptville District Hospital	39
CHM	Arnprior and District Memorial Hospital	46
CHM	Winchester District Memorial Hospital	51
CHM	Renfrew Victoria Hospital	63
CHM	Glengarry Memorial Hospital	75
CHM	Hôpital General De Hawkesbury and District General Hospital	76
CHM	Cornwall - McConnell	83
CHM	Pembroke Regional Hospital	99
CHM	Deep River And District Hospital	130
CHM	St. Francis Memorial Hospital	136
Primary PCI: Target transfer to UOHI ≤60 minutes		
Pharmacoinvasive: Target transfer to UOHI ≤24 hours		



Percentage of STEMI Cases Presenting Directly to a PCI Hospital via Paramedic Services Achieving Time ≤ 90 Minutes from Qualifying ECG to First Balloon Inflation/Device Deployment (Appendix B)

FY 21/22 Q3: October 01, 2021 to December 31, 2021

Province

Location	% Within 90 Minutes
Central	74
Central East	77
Central West	83
Champlain	67
Erie St.Clair	48
Hamilton Niagara Haldimand Brant	63
Mississauga Halton	87
North East	71
North Simcoe Muskoka	85
North West	64
South East	46
South West	68
Toronto Central	60
Waterloo Wellington	85
Province	71

DQ Note: 66 case(s) were excluded due to missing or incomplete data.

Report Note: 19 case(s) were excluded due to fibrinolysis contraindicated.

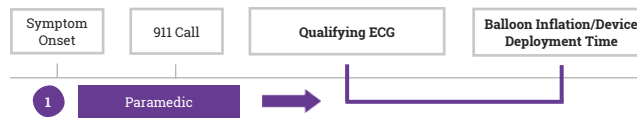
Interpret SAH STEMI data with caution as their STEMI program is currently not fully operational.

Champlain LHIN

Location	% Within 90 Minutes
University of Ottawa Heart Institute	67
Champlain	67

Indicator Definition:

This sub-indicator is balloon inflation/device deployment within 90 minutes from qualifying ECG for patients transported via paramedic services directly to a PCI hospital. The indicator start is paramedic qualifying ECG and end is first balloon inflation/device deployment.



Inclusion:

- STEMI diagnosis on referral
- Proceeds to procedure
- Coronary angiogram as initial procedure
- Proceeds directly to a STEMI PCI site
- Proceeds to primary PCI

Exclusion:

- Records with invalid data
- Records with incomplete data
- In-hospital patients
- Fibrinolytic contraindicated

The data presented is collected in the Cardiac Registry

Median Time of STEMI Cases Presenting Directly to a PCI Hospital via Paramedic Services from First Medical Contact to Hospital Arrival (Appendix C)

FY 21/22 Q3: October 01, 2021 to December 31, 2021

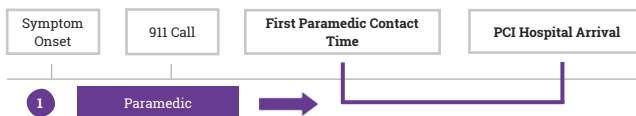
Champlain LHIN

Location	Median (min)
University of Ottawa Heart Institute	40
Champlain	40

DQ Note: 15 case(s) were excluded due to missing or incomplete data.

Indicator Definition:

This sub-indicator is the median time in minutes from first medical contact (FMC) with paramedic service to arrival at a PCI hospital. The indicator start is paramedic FMC and end is PCI hospital arrival.



Inclusion:

- STEMI diagnosis on referral
- Proceeds to procedure
- Coronary angiogram as initial procedure
- Proceeds directly to a STEMI PCI site
- Proceeds to primary PCI

Exclusion:

- Records with invalid data
- Records with incomplete data
- In-hospital patients
- Fibrinolytic contraindicated

Median Time of STEMI Cases Presenting to a Non-PCI Hospital via Paramedic Services from First Medical Contact to Balloon Inflation/Device Deployment (Appendix D)

FY 21/22 Q3: October 01, 2021 to December 31, 2021

Province

Location	Median (min)
Central	292
Central East	N/V
Central West	N/V
Champlain	149
Erie St.Clair	166
Hamilton Niagara Haldimand Brant	135
Mississauga Halton	N/V
North East	N/V
North Simcoe Muskoka	105
North West	N/V
South East	334
South West	142
Toronto Central	324
Waterloo Wellington	168
Province	157

DQ Note: 55 case(s) were excluded due to missing or incomplete data.
 Report Note: 7 case(s) were excluded due to fibrinolysis contraindicated.
 Interpret SAH STEMI data with caution as their STEMI program is currently not fully operational.

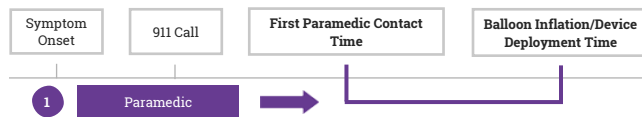
Champlain LHIN

Location	Median (min)
Almonte General Hospital	N/V
Arnprior and District Memorial Hospital	N/V
Carleton Place and District Memorial Hospital	209
Cornwall Community Hospital	N/V
Deep River and District Hospital	N/V
Glengarry Memorial Hospital	N/V
Hawkesbury and District General Hospital	N/V
Kemptville District Hospital	N/V
Montfort Hospital	N/V
Ottawa Hospital - Civic	159
Ottawa Hospital - General	192
Pembroke Regional Hospital	N/V
Queensway Carleton Hospital	142
Renfrew Victoria Hospital	N/V
St. Francis Memorial Hospital	N/V
Winchester District Memorial Hospital	N/V
Champlain	149

DQ Note: 10 case(s) were excluded due to missing or incomplete data.

Indicator Definition:

This sub-indicator is the median time in minutes to balloon inflation/device deployment from paramedic first medical contact (FMC) for cases who are transported to a non-PCI hospital first then are transferred to a PCI hospital. The indicator start is paramedic FMC and end is first balloon inflation/device deployment.



Inclusion:

- STEMI diagnosis on referral
- Proceeds to procedure
- Coronary angiogram as initial procedure
- Proceeds to a STEMI PCI site from a non-PCI site
- Proceeds to primary PCI

Exclusion:

- Records with invalid data
- Records with incomplete data
- In-hospital patients
- Fibrinolytic contraindicated

The data presented is collected in the Cardiac Registry